

1. Define: *The planning horizon* and its relation with the decision level in production system.
2. A Printer Manufacturer makes laser printers. Standards indicate that one worker can assemble four printers per day. This Printer costs about L.E. 280 to make, and the company figures it costs L.E. 4 to hold one printer in inventory for one month. Workers earn L.E. 1200 per month and can be hired for L.E. 400 each; firing a worker costs L.E. 600. Currently, there are 10 workers in the assembly department. If a printer is backordered, the cost is L.E. 30 per unit per month.

Month	July	August	September	October
Working Days (day)	22	21	23	19
Demand (unit)	1020	800	1200	650

It is required to:

- (a) Develop a zero inventory plan for this problem.
- (b) Develop a constant work-force plan when no backorders are allowed.
- (c) Develop a constant work-force plan that allows backorders.
- (d) If a limited backorder (ONLY THREE units) is allowed, what is the total cost of this plan?
- (e) Which plan (of the four plans above) is the better?
- (f) Formulate an LP model to develop a zero inventory plan.

*With my best wishes*

**ADEL ABDEL-MO'EZ, Ph.D.**